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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|-------------------------|------------------|
| 10/046,926 | 01/13/2002 | Steven Teig | SPLX.P0085 | 3333 |
| 23349 | 7590 | 07/14/2004 | EXAMINER SIEK, VUTHE | |
| STATTLER JOHANSEN & ADELI P O BOX 51860 PALO ALTO, CA 94303 | | | ART UNIT 2825 | |

DATE MAILED: 07/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application N .

10/046,926

Applicant(s)

TEIG ET AL.

Examiner

Vuthe Siek

Art Unit

2825

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 May 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) 16-20 and 23-27 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 6-15, 21-22 is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 5/7/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. This office action is in response to application 10/046,926 and amendment filed on 5/7/2004. Claims 1-27 remain pending in the application.

Election/Restriction

2. Restriction to one of the following inventions is required under 35 U.S.C. § 121:

I. Claims 1-15 and 21-22, drawn to a method of defining routes for nets using a first set of lines to measure length of routes and using a second set of lines to measure congestion of routes, classified in Class 716, subclass 13.

II. Claims 16-20 and 23-27, drawn to a method of defining routes for nets comprising using a first grid formed by a first set of intersecting liens to measure length or routes and using a second grid formed by a second set of intersection lines to measure congestion of routes, classified in Class 716, subclass 13.

Newly submitted claims 16-20 and 23-27 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: a method of defining routes for nets comprising using a first grid formed by a first set of intersecting liens to measure length or routes and using a second grid formed by a second set of intersection lines to measure congestion of routes.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 16-20 and 23-27 are withdrawn from consideration as being directed to a non-elected invention. Applicant(s) are requested to

cancel claims 16-20 and 23-27 in the next communication. See 37 CFR 1.142(b) and MPEP § 821.03.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-5 are rejected under 35 U.S.C. 102(b) as being anticipated by Andrew et al. (6,070,108).

5. As to claim 1, Andreev et al. teach a method of designing routing for nets in a region of a circuit layout (Figs. 2-5) comprising a) using a first set of lines to measure length of routes (col. 4, lines 15-57) and b) using a second set of lines to measure congestion of routes (vertical densities or capacities and horizontal densities or capacities determination) (col. 4, lines 15-67; col. 5-6).

6. As to claim 2, since a second set of lines to measure congestion of routes is determined by a total number of lines crossing each segment and length of routes is measured using only line that connects between pins, thus some of route lines are not in the set of lines used to measure congestion.

7. As to claims 3-5, the second set of lines define a plurality of congestion edges, wherein using the second set of lines comprising measuring the congestion of routes across the congestion edges, routes having vertical edges, horizontal edges, diagonal edges that intersect the congestion edges (Fig. 5, for simplification, shown only one

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diagonal line in the figure), thus measuring congestion of route across the congestion edges comprising measuring the congestion of horizontal or vertical or diagonal route edges across the congestion edges (using vertical capacity or density or horizontal or density segments to define routing; Fig. 5, col. 4-6).

Allowable Subject Matter

8. Claims 6-15 and 21-22 are allowed over the prior art of record.

Remarks

9. Applicant(s) argued that the reference does not teach using a first set of lines to measure length of routes. Examiner respectfully submits that Andreev et al. routing of wires to connect pins of the cells. All distances are measured using rectilinear or Manhattan distance (col. 1, lines 32-44). The channels running vertically and horizontally are used to measure routing. For non Manhattan routing, coordinates between pins are used to measure routing. The connection lines between pins formed routes. Therefore those set of routes or connection lines are used to measure routes. Andreev et al. teach a rectangular coordinate grid is used to measure distance on the IC (routes) (col. 4). Thus, Andreev et al. teach the claim limitations.

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vuthe Siek whose telephone number is (571) 272-1906. The examiner can normally be reached on Increase Flextime.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Smith can be reached on (571) 272-1907. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Vuthe Siek
July 10, 2004


VUTHE SIEK
PRIMARY EXAMINER